

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) An isolated DNA molecule from a *Bacillus* species encoding a beta subunit of a DNA polymerase III-type enzyme, the isolated DNA molecule ~~either:~~

(i) ~~comprising a nucleotide sequence of SEQ ID NO: 173;~~

(ii) ~~encoding an amino acid sequence of SEQ ID NO: 174; or~~

(iii) ~~hybridizing to the complete complement of SEQ ID NO: 173 under hybridization conditions that are at least as stringent as use of a medium comprising ~~at most about~~ 0.9M sodium citrate buffer at a temperature of ~~at least about~~ 37°C.~~

2. (Original) The isolated DNA molecule according to claim 1, wherein the *Bacillus* species is *Bacillus stearothermophilus*.

3-5 (Cancelled)

6. (Original) An expression system comprising an expression vector into which is inserted a heterologous DNA molecule according to claim 1.

7. (Original) A host cell comprising a heterologous DNA molecule according to claim 1.

8. (Original) A method of producing a recombinant thermostable beta subunit of a DNA polymerase III-type enzyme from a *Bacillus* species, said method comprising:

transforming a host cell with the heterologous DNA molecule according to claim 1 under conditions suitable for expression of the beta subunit, and
isolating the beta subunit.

9. (Original) An isolated DNA molecule from *Bacillus stearothermophilus* encoding a beta subunit of a DNA polymerase III enzyme, wherein the encoded beta subunit can cooperate with a clamp loader for loading of a beta clamp onto a DNA strand.

10. (New) An isolated DNA molecule according to claim 1, wherein the hybridization conditions comprise a medium comprising 20% formamide and 0.9M sodium

citrate buffer and at a temperature of 42°C, followed by washing in 0.2X sodium citrate buffer at 42°C.

11. (New) An isolated DNA molecule according to claim 1, wherein the hybridization conditions comprise a medium comprising 5X sodium citrate buffer and at a temperature of 65°C, followed by washing in 5X sodium citrate buffer at 65°C.

12. (New) An isolated DNA molecule according to claim 1, wherein the beta subunit encoded by the DNA molecule is at least 80 percent identical to the amino acid sequence of SEQ ID NO: 174.

13. (New) An isolated DNA molecule according to claim 1, wherein the beta subunit encoded by the DNA molecule is at least 90 percent identical to the amino acid sequence of SEQ ID NO: 174.

14. (New) An isolated DNA molecule according to claim 1, wherein the beta subunit encoded by the DNA molecule is at least 95 percent identical to the amino acid sequence of SEQ ID NO: 174.

15. (New) An isolated DNA molecule according to claim 1, wherein the DNA molecule is at least 90 percent identical to the nucleotide sequence of SEQ ID NO: 173.

16. (New) An isolated DNA molecule according to claim 1, wherein the DNA molecule is at least 95 percent identical to the nucleotide sequence of SEQ ID NO: 173.

17. (New) An isolated DNA molecule that encodes the amino acid sequence of SEQ ID NO: 174.

18. (New) The isolated DNA molecule according to claim 17, wherein the DNA molecule comprises the nucleotide sequence of SEQ ID NO: 173.

19. (New) An expression system comprising an expression vector into which is inserted a heterologous DNA molecule according to claim 17.

20. (New) A host cell comprising a heterologous DNA molecule according to claim 1.

21. (New) A method of producing a recombinant thermostable beta subunit of a DNA polymerase III-type enzyme, said method comprising:

transforming a host cell with the heterologous DNA molecule according to claim 17 under conditions suitable for expression of the beta subunit, and isolating the beta subunit.